

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1, 8-12, 15-22, drawn to an adaptive control unit using an expectation value of a product of an inner product between an increment vector and the compensation vector, and the latest deviation vector.

Group II, claim(s) 2, drawn to an adaptive control unit using an expectation value of a product of an inner product between said input signal and said vector signal and an increment vector.

Group III, claim(s) 3, drawn to an adaptive control unit using an expectation value of a product of an integrated value and a latest deviation vector, wherein the integrated value is a sum of past inner products being integrated, in which each of the past inner products is an inner product of an increment vector and the compensation vector.

Group IV, claim(s) 4, drawn to an adaptive control unit using an expectation value of a product of an integrated value and an increment vector, wherein the integrated value is a sum of past inner products being integrated, in which each of the past inner products is an inner product of said input signal and said vector signal.

Group V, claim(s) 5, drawn to an adaptive control unit which subtracts from said vector signal, the inner product between an increment vector and a compensation vector.

Group VI, claim(s) 6, drawn to an adaptive control unit which subtracts from a vector signal, the inner product between an input signal and said vector signal.

2. The groups of inventions listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Each of the above groups relates to a different implementation for the adaptive control unit. As the deviation monitor, a common element amongst each of the groups, is known in the art, the different implementations for the adaptive control units lack unity.

3. During a telephone conversation with Pedro Fernandez on 5/17/2010 a provisional election was made without traverse to prosecute the invention of Group I, claims 1, 8-12, 15-22. Affirmation of this election must be made by applicant in replying to this Office action. Claims 2-6 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

#### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 8-12 and 15-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 3 recites "the results of processings" but there is no antecedent for this limitation. It is suggested to applicant to delete "the".

Claim 1, line 5 recites "the DC components" but there is no antecedent for this limitation. It is suggested to applicant to delete "the".

Claim 1, line 10 recites "the latest deviation vector" but there is no antecedent for this limitation. It is suggested to applicant to change this to --a latest deviation vector--.

Claim 8 is dependent on claim 1.

Claim 9, line 2 recites "said adaptive control" but it is unclear whether this refers to the adaptive control unit of claim 1, to a signal element as suggested by Fig. 1, or to some other limitation. For examination on the merits, the claim will be interpreted as best understood.

Claim 9, line 3 recites "said adaptive control unit sets a step size u... to the larger value as said deviation is the larger," but this language is awkward and lacks proper antecedent basis for "the larger value" presumably due to translation from a foreign specification/claim.

Claim 10, line 2, recites "said adaptive control" but it is unclear whether this refers to the adaptive control unit of claim 1, to a signal element as suggested by Fig. 1, or to some other limitation. For examination on the merits, the claim will be interpreted as best understood.

Claim 10, line 3, recites "said adaptive control unit sets a step size u... to the larger value as said increment vector has the larger absolute value," but this language is awkward and lacks proper antecedent basis for "the larger value" and "the larger absolute value" presumably due to translation from a foreign specification/claim.

Claim 11, lines 2-3, "the larger the deviation determined in advance, said deviation monitor unit smoothes said DC component in shorter interval, and updating the compensation vector" but this language is awkward and lacks proper antecedent basis for "the deviation determined in advance". It is suggested to applicant to amend this claim to read as "wherein the larger a deviation determined in advance, the shorter the interval said deviation monitor unit smoothes said DC component".

Furthermore, claim 11 appears to suggests that the deviation monitor unit updates the compensation vector (lines 4-5), but this conflicts with claim 1, line 6, which indicates the adaptive control unit updates the compensation vector.

Claim 12, lines 2-3 are similar to claim 11, and are similarly rejected. Similar changes to claim structure are also suggested.

Claim 12, lines 2-5 recite "said deviation monitor unit... updating the compensation vector" thereby suggesting that the deviation monitor unit updates the compensation vector (lines 4-5), but this conflicts with claim 1, line 6, which indicates the adaptive control unit updates the compensation vector.

Claim 16, line 2 recites "the deviation determined in advance" but there is insufficient antecedent basis for this limitation in the claims. The claim will be interpreted as best understood.

Claim 18, lines 2-3 similarly recite "the deviation determined in advance" but there is insufficient antecedent basis for this limitation in the claims. The claim will be interpreted as best understood.

Claim 21, lines 3 recite "the instant when the average of a DC..." but there is insufficient antecedent basis for these limitations in the claim. It is suggested to applicant to change this to read as "an instant when an average of a DC..."

Claim 22, lines 2-3 recite "the period for which the level of the component... for the offset..." There is insufficient antecedent basis for these limitations in the claim.

Claims not specification mentioned are dependent on claim 1, and are also rejected.

*Allowable Subject Matter*

7. Claims 1, 8-12, 15-22 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

*Conclusion*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID HUANG whose telephone number is (571)270-1798. The examiner can normally be reached on Monday - Friday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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